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QUEST FOR KNOWLEDGE

I.C.I.'s University Research Fellowship Scheme explained

By Sir Wallace Akers

Ninety-two research fellowships, spread over eleven universities, owe their existence to the generosity of I.C.I. What is the Company's object in fostering university research? And how does this enlightened plan of help work out in practice? These questions are answered by I.C.I.'s former research director.

THERE are two main reasons why it is of such very real interest to I.C.I. that the scientific departments of the universities should be in an active, healthy condition, enlivened by the stimulus of active research work on an adequate scale.

The first reason is that it is the research in university laboratories which provides the main supply of new knowledge, the application of which is studied in I.C.I.'s own laboratories. Of course, the British chemical industry does not draw only on British university laboratories for new knowledge—the product of the research work in universities throughout the world is available; but unless the British universities do their fair share of research their reputation will fall and they will begin to fail to attract the most promising students.

The second reason is that it is only the universities which can supply the young scientists from which I.C.I. recruits staff, not only for its research departments but also for the design and operation of its plants and for the selling of its products, most of which require highly skilled technical sales service. I.C.I. employs also, of course, university graduates in branches of learning other than the so-called "natural sciences"—particularly engineers who are really applied physicists—but, very naturally, it is the chemical faculty of a university which is of special interest to firms in the chemical industry, like I.C.I. The Company does recruit scientific staff from universities outside the British Isles, notably from Australia and New Zealand, but, in the nature of things, the majority must be found in British universities.

It was clear, therefore, from the time when I.C.I. was formed that the Company was vitally interested in the well-being of the scientific departments of the British universities and that it was justified in giving help to them; and the only effective way of helping a university is by making financial grants or their equivalent.

In passing, it might be asked why universities in Britain need financial help from industry: do they not get very substantial grants from the Government?

The Government does, in fact, make grants to our universities to the amount of about £25 million a year, which represents about two-thirds of their total income from all sources, including these grants. The present educational policy of the country also ensures that state or county scholarships are available to the extent that no really bright boy or girl leaving school can be prevented by lack of means from going to a university.

Nevertheless a real problem does confront the universities in providing fellowships to enable the most able among the young graduates to remain at the university to carry out original research. Through the Department of Scientific and Industrial Research the Government provides a large number of bursaries to make it possible for promising young graduates to carry out research for one or two years and so obtain a higher degree, but this still leaves a serious need for fellowships of higher annual value to help the rather older graduate of exceptional promise to continue his research work a little longer while waiting, perhaps, for a university appointment.

For the first fifteen years or so of its existence the Company gave financial help to the universities in a number of ways. One of these was to pay to a university a sum to cover the subsistence allowances of a group of young post-graduate research students and the appropriate overhead charges of the laboratory with a fee for supervision by the professor. The group would work on a problem of interest to I.C.I., and the Company would have an exclusive claim to any results of this work which might constitute a patentable invention. This practice had been followed very profitably for a number of years by such companies as the great German chemical combine, the I.G. Farben.

I.C.I., however, realised after a time that although this method of helping universities was, in the short run, likely to be profitable to the Company, it was undesirable from the point of view of the real interest of the universities, and so, in the long term, harmful also to I.C.I. on account of the inevitable deterioration in the quality of the research carried on in the university and of the graduates turned out by the university. The method is undesirable because it is quite foreign to the whole idea of a university that a group of research students should not be able to discuss freely with others working in the laboratory every detail of their own work. Since 1944, therefore, this method has been entirely abandoned and has been replaced by a number of ways of giving help, by far the most important of which is the I.C.I. Fellowship Scheme.

When the scheme was started in 1944 it was decided, after consultation with the universities concerned, that the value of each fellowship should be £600 per annum on the average. If this figure was the right one in 1944 it was clearly too low in 1951, so that, again after discussion with the universities, the figure was raised to £800 per annum, the annual cost to the Company being £73,600. As there were bound to be differences between the ages of the holders of the fellowships, the universities were given discretion to vary the emolument paid to a fellow between £600 and £900 but always, of course, keeping the annual total payment for all fellowships at the figure representing an average value of £800. This discretion was necessary to ensure, at the same time, that the fellowships would attract the best of the potential research students and also that they did not conflict with the emoluments of scientists of the same ages working on the teaching staff of the university.

Freedom of Administration

The scheme was received with the greatest enthusiasm by all concerned and has been described as the greatest and most enlightened plan yet put forward by industry for the help of the universities. The main reason for this is the complete freedom which is left to the universities for the administration of the scheme.

In 1944 the Board of the Company announced that it had decided to provide a sum of about £50,000 per annum for seven years to enable certain universities to establish research fellowships in chemistry, physics, or allied

sciences having some relation to the manufacturing activities of the Company. In 1951 the Company informed these universities that it was so satisfied with the way in which the universities had administered the scheme that it proposed to renew the covenants for a further seven years and at the same time to increase the amount of money so provided to take account of the decreased value of money.

It was clear to the Company at the start that to provide a reasonable number of fellowships for each of the universities in Britain would cost very much more than the Company could reasonably pay for a purpose even so worthy as this. It was necessary, therefore, to make a choice among the universities, and this was done on the principle of granting fellowships to the three "national" English universities—Oxford, Cambridge and London—and also to universities situated in districts where I.C.I. had substantial manufacturing interests.

In certain cases, owing to an extension of the Company's activities, further universities have been added to the original list, with the result that, for this second period of seven years, I.C.I. provides in all 92 fellowships, spread over eleven universities.

As can be imagined, those universities which did not receive fellowships felt somewhat unhappy, and more than one of them made representations to the Company, asking to be included in the scheme. The Company pointed out that it had been necessary, for financial reasons, to select certain universities and stated that it hoped that the scheme would be followed by other large firms so that any university which had been left out of the I.C.I. scheme should try to persuade other firms with manufacturing interests in the district to establish similar fellowships; this has happened in certain cases.

Liberal Interpretation

All the Company requires is that the fellow shall do "some teaching" in the university and that the subject of his research shall fall within the very broad field already mentioned. The universities certainly have interpreted the definition of this field very liberally, for we find fellowships held by people doing research in chemistry, physics, biochemistry, chemotherapy, pharmacology, metallurgy, engineering, geology, applied mathematics, and even the history of science.

The administration is left entirely to the universities which choose the fellows and supervise their work. Up to the present the majority of I.C.I. fellows have afterwards taken teaching posts in the universities. This is not surprising, as the first groups of fellows finished their term of fellowship at a time when the universities were in dire need of additional scientific teaching staff, since, on the urgent representations of the Government, they had rapidly doubled the number of science students.

Although the fellowship scheme is easily the most important way in which I.C.I. helps the British universities, it is by no means the only one. The universities of Aberdeen and St. Andrews were given substantial help other than by the establishment of fellowships, and the Company has subscribed liberally to funds for the setting up of certain chairs in universities and to building funds for the construction of new laboratories.

In some ways two of the most popular schemes operated by I.C.I. are those which help university chemical—and to a smaller extent physics and engineering—professors to obtain expensive apparatus and chemicals. Chemical research apparatus tends to become more and more complicated and expensive, so that it is often impossible for a professor to obtain a much-needed piece of apparatus out of the funds provided by his university. Likewise many chemicals are too expensive to be bought with the funds available for this.

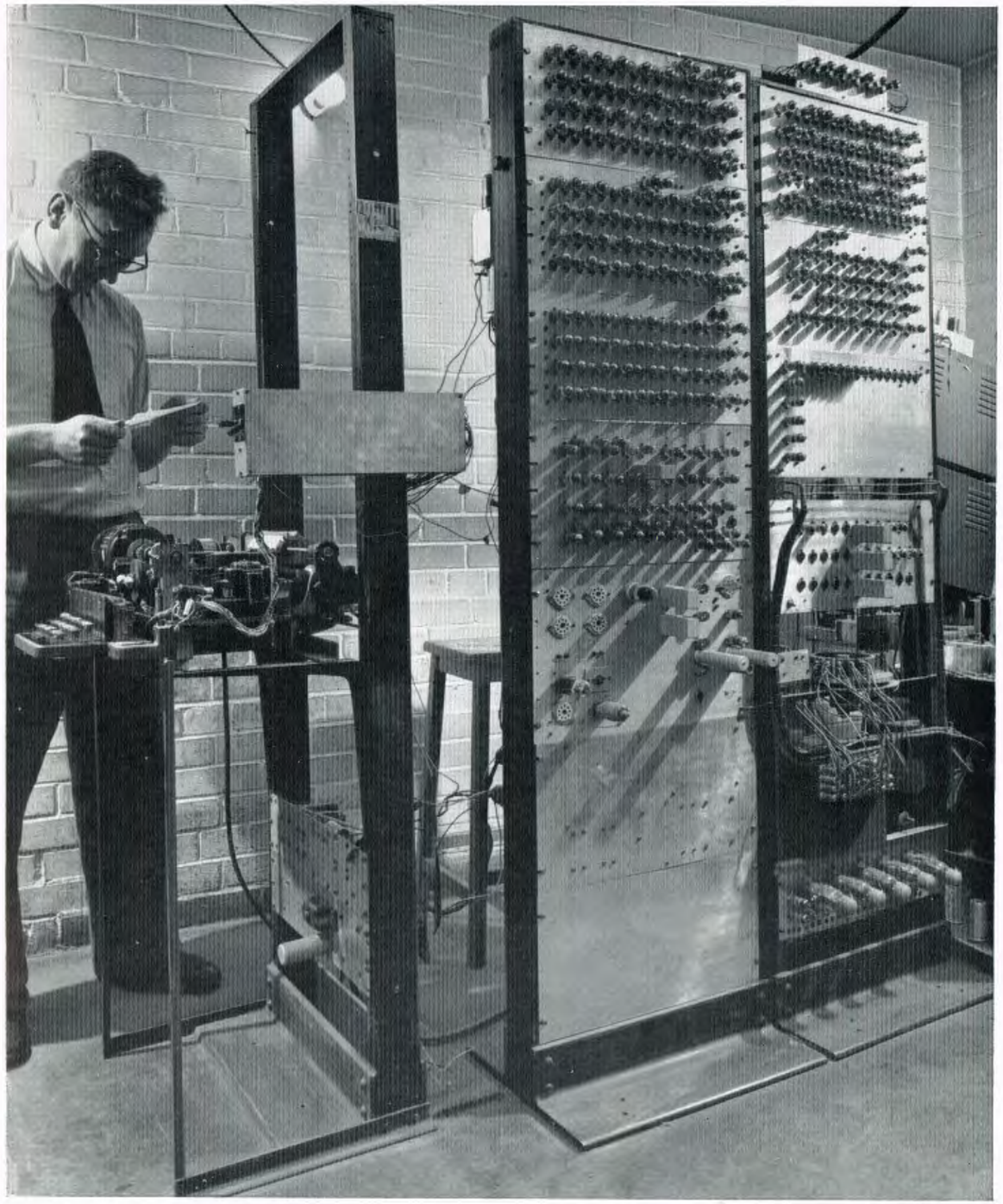
Grants for Apparatus

I.C.I. operates a scheme whereby the Company makes grants amounting to about £30,000 per annum for these purposes. The heads of the chemical departments of any university in Great Britain can apply each year for a special piece of apparatus and also for money to buy special chemicals. Towards the end of the year all the applications are examined and the necessary scaling down is done to bring the total within the figure mentioned. The apparatus is ordered by I.C.I. and remains the property of the Company. The sum allotted to each professor for special chemicals is paid to him personally, and he accounts for it at the end of the year.

The usefulness of these two schemes to the professors is out of all proportion to the sum involved, and they have certainly added greatly to the ability of the university chemical departments to carry out their researches.

The Company also helps universities which wish to set up a department in some special branch of chemistry but which cannot obtain the necessary funds at the outset from the money made available by the Government through the University Grants Committee. In certain cases I.C.I. has provided money to keep the embryo department alive until it has become sufficiently well established and recognised to obtain its finance in future in the ordinary way.

Finally, although I.C.I. no longer makes a practice of subsidising special researches in the way described earlier, nevertheless it does occasionally give financial help to a section of a department which happens to be working on problems likely to be of special interest to the Company. But the Company claims no special rights at all in the results of the researches, so that the academic integrity of the department is not harmed in any way.



THE ELECTRONIC BRAIN *at Birkbeck College, London—an example of university research assisted by a grant from I.C.I. Its official name is the "all-purpose electronic calculating machine." What might be called the memory of the brain is that part of the apparatus to the bottom right of the picture, and the answer comes over the ticker tape where the operator is standing. The "brain" is able to make bids at bridge, and some of them can play a simple game of draughts.*

One man and his job—14

SILICATE FURNACEMAN

ONE of the warmest jobs these summer nights belongs to Bob Baker at the Winnington Works of Alkali Division. He tends a furnace burning at 1450° C., a brick-built affair about thirty feet long and half as wide, spouting flame and searing light at one end and oozing what appears to be white-hot treacle at the other. Within ten feet of it I began to wilt, but Bob was hardly sweating—he has had more than a decade to get used to it.

"What am I making? Come round here and I'll show you," he said.

He led me behind the furnace and through an intricate jungle of doors and iron ladders to the outside air. It looked as if I.C.I. had gone into the jewellery business. A vast heap of amethysts and diamonds glittered under the floodlights. Every now and then a grab picked up a one-ton handful and sent it cascading brilliantly into a hopper in front of us.

"You may think that looks like a kind of glass," said Bob, "and that's exactly what it is."

Back beside his furnace—he never leaves it untended for more than a few minutes—Bob explained that the "diamonds" and "amethysts" were sodium silicate. It was glass all right, but instead of being tough and well-nigh insoluble, like window glass, it could be dissolved with steam and water to give the sticky liquid that is known as waterglass by the housewife who puts up eggs for the winter. Bob's furnace—the dry side of the process—produces the silicate glass that I had seen in the stock-pile outside; on the wet side they pick up the glass and dissolve it in what is, in effect, a gigantic pressure-cooker.

In twenty-four hours, Bob told me, they could produce enough sodium silicate to preserve all the eggs there will be for the rest of time. But most of the product goes to large users: paper and board makers employ it as an adhesive; builders use it for curing concrete; the chemical industry and paintmakers take some; and makers of soaps and detergents take about half the Winnington output, for, strange as it may seem, this dissolved glass has powerful detergent and suspending properties.

The furnace is charged continuously with a fixed proportion of sand and dense soda ash, calculated to give a final glass containing about three and a half times as much silica as soda. The sand, similar to that used by glassmakers, has to be pure. It comes from special quarries near Leighton Buzzard, and is guaranteed to contain no more than 0·8% of impurities and only traces of the iron that accounts for the bluish tinge of the finished glass. The soda ash comes from Wallerscote Works, just across the road. Its purity is taken for granted, but it has to be of the dense grade, which being granular and dust free mixes well with the sand and does not get blown about in the furnace and lost with the burnt gases. Only the absence of lime distinguishes the process from conventional glass manufacture.

In the fierce heat of the furnace the soda ash and sand fuse into a molten mass which flows out of the far end as fast as new material is fed in. Through a green glass face-shield we watched the molten silicate pouring into the buckets of a conveyor, which took it, cooling rapidly, to the pile outside. Bob picked up a spilt piece. "That's good glass," he said: "you could read a newspaper through it if you wanted to."

The trickiest part of a silicate furnaceman's job is keeping the temperature within bounds. If it is allowed to fall below 1400° C. the contents of the furnace become too viscous to flow readily. If it rises above 1500° C. the refractories of the roof may be affected. By intelligent anticipation he tries to maintain the temperature at a steady 1450° C. As soon as the needle on the temperature recorder begins to move he makes an adjustment to the gas supply: the merest tap on the valve supplying steam to the producer, a minute adjustment to the coal feed.

And, of course, there are the inevitable emergencies to deal with. Once in a while the furnace walls spring a leak, which must be plugged before the whole sixty tons of molten material are emptied on to the floor. Bob speaks of these occasions with as much relish as he does of a "good bit of glass" or the "nice cherry-red" of a producer-fire that is burning well, leaving no doubt that here is a man who enjoys his job hugely. M.J.D.

Information Notes

THE SAVOUR OF SALT

By T. R. Scott (Salt Division)

One of the oldest markets for I.C.I. salt is in Nigeria, where the traditional salt is the bulky variety produced by the costly and old-fashioned open-pan method dating from Roman days. But today the African is being introduced to a new type of fluffy salt produced by the modern vacuum process. Here is the story of a difficult selling problem in the face of age-old prejudices.

In recent years I.C.I. have done much research work on crystallisation, and one outcome of this has been that four years ago, in the Research Department at Winsford, we found that we could induce the small cubic crystals of vacuum salt to sprout branches at each corner. This meant that from a vacuum plant we could obtain salt which was fluffy, bulky, and light.

The new salt had properties rather similar to those of open-pan salt, which is produced by a most costly and laborious process. This open-pan salt, commonly known as Lagos salt, is the standard product for sale in Nigeria (which is this country's largest export market for salt), so Nigeria was clearly the place for a trial.

At that time we knew very little about Nigeria and what went on there. The reason for this was that our Lagos salt goes down the river to Liverpool and is sold to merchants such as United Africa Company and John Holts. They take over at this point, and it is their business to get the salt to Nigeria and bring out in exchange things like palm oil, cocoa, groundnuts, hides and so on.

It was likely that there would be some problems with the new salt, and so two years ago Dr. Stein and I made a preliminary visit there. The market looked reasonably promising, so we started offering dendritic salt—the technical name for the new fluffy salt—to the merchants, and for some time they took it in quite big quantities. Then sales began to hang fire, and last autumn I was asked to go out again and see what was happening.

I did not go round by sea but flew over the ancient route across the Sahara Desert and into the north of Nigeria. My plane arrived early one morning at Kano. As we touched down there was a great commotion at the airfield.

A large crowd of Africans had gathered, dressed in white and blue robes. There were camels and donkeys, and long trumpets were being blown. We soon found out that the reception was not for us. They were expecting a plane from Mecca bringing their friends and relations back from a pilgrimage to the Holy Land. In this part of Nigeria the Africans adopted centuries ago the Mohammedan way of life. They acquired the Mohammedan religion and customs through the ancient trade route across the Sahara.

Of course, it is only the rich people who can afford to fly to Mecca. Most people in Nigeria are not like that at all. There are about 30 million of them, most of whom are scratching an impoverished living from farming.

Their methods are very primitive: they cut down a few acres of bush, build a few mud huts and grow crops such as maize and groundnuts; but in three or four years the soil is worn out and they move on to another patch. They have a very low standard of living and grow little more food than they need for themselves. They sell their small surplus mostly to buy imported goods such as salt, cotton prints, enamel bowls, and machetes (the large knife which serves for every kind of hacking, chopping or scything operation).

One of the first things my hosts of the United Africa Company took me to see was a village market a good way out into the bush country. This market was typical of the way in which the Nigerians trade.

As we came near to the market the roads became lined with people in single file with baskets on their heads. Men, women and children all carry enormous loads on their heads. When we came to the market it was just a clearing of a few acres with rows of stalls thatched to keep off the strong sun and heavy rain. The stalls were stocked chiefly with local produce such as yams, maize, cola nuts for chewing, bananas, etc., but there were also imported goods such as dried fish from Norway, beads, sugar, and, of course, salt. Half a dozen men sat on the ground, each with a big basket of Lagos salt at his side—

German Lagos in this case, I am sorry to say—and every now and then a marketman would measure out a cigarette tin full of salt, wrap it in a banana leaf, and sell it to a customer for a penny.

Several other things going on in the market were interesting. There was a juju stall, for instance, where they sold repulsive-looking bits of skin and claws and feathers for making magic. In one corner I saw a Syrian buying up groundnuts for the government. Native women were bringing him baskets full of the nuts already shelled. In another place a cow was brought up, killed on the spot, and cut into small pieces for sale there and then.

I think it is interesting to trace the way that the salt reaches this market. First it comes by sea to the mouth of the river Niger to the port of Burutu. Here duty is payable at the rate of 70s. per ton (quite a large slice of Nigerian revenue is raised by salt). The salt is then conveyed by river steamer up the Niger for 200 miles, where it is put on to a train. After the train journey it is transferred to a lorry and taken to a small country town.

... the reception was not for us ...

At this point the salt passes out of the hands of the importing merchants. African middlemen buy in one to ten ton lots and resell, a bag or two at a time, to the marketman, who puts it on to the back of a donkey and takes it to market.

I went round the country working my way southwards for about four weeks staying at the local rest houses, which consist of a sort of bungalow with just a native cook and houseboy. As I went south I passed into the region of the pagan tribes, who are very primitive indeed and wear practically nothing. Further south again, near the sea coast, is the thick forest belt. Here the Africans have been more in contact with European traders and missions. They can speak pidgin English and wear more conventional clothes, and there is a minority that is highly educated—lawyers, doctors and so on. Also, since they are not Mohammedans, the market trading is done by women, some of whom become enormously wealthy.

As I went along I discussed salt problems with the managers of the United Africa Company, the African middlemen and the stallholders; and also tried to get a little knowledge of the cooking customs. To settle one argument we arranged for a number of "mamie" traders to bring native food, which we divided up and salted with equal quantities of dendritic, Lagos and vacuum salt. The food was very peculiar. It was a thick, porridge-like stew with a lot of oil and a staggering quantity of peppers.

It turned out, as one might expect, that no one could tell the difference between the samples salted with the different grades of salt.

I talked to senior government officials from the department of commerce and industries and asked what their ideas were about imports and particularly about licences for German salt. Until recently they were refusing import licences for German salt because they needed to reduce the Nigerian expenditure of foreign currency, but that is no longer the position, so we cannot count on any currency difficulties to help us in our competition with German salt. I also talked with the medical authorities about whether they wanted iodised salt in Nigeria because of goitre, and I found that there is a good deal of support for the idea.

I talked to the geologists about their search for rock salt and brine under the ground in Nigeria. They are keen to start their own salt industry because there was an unpleasant experience during the war when salt imports were heavily reduced owing to shipping difficulties and there was rioting over the salt shortage. I came to the conclusion from what I was told that there is no likelihood of their finding worthwhile amounts of salt or brine in Nigeria.

That, roughly, was the tour. I went out having been teased about the salt industry and its alleged way of cheating the poor African by selling him a fluffed-up salt because he has never seen a weighing machine. The fact of the matter is that the African, although often poor and ignorant, is certainly intelligent and understands very well the difference between a salt which is compact and one which is fluffed up. But he happens to like the salt fluffed up.

There are reasons for this, quite apart from the fact that the marketwoman likes to be able to give a good big measure for 1d. to the people who buy her salt. The fluffed-up salt dissolves easily in their thick stew. In one or two places they had tried solar salt (which is like fishery salt), but they complained of this because there was undissolved salt left in the stew. Either someone got a mouthful of salt, or it was left in the unfinished stew and the next day the stew was too salty.

... bulky salt mops up moisture ...

The fluffed-up salt is also useful in Nigeria because over a large part of the country it is very wet (they have ten times as much rain as we get), and a bulky salt blots up moisture well. If you have vacuum or crystal salt in a cup in a hut it turns to brine in two or three days in wet weather, whereas Lagos or dendritic salt will keep for much longer—perhaps a fortnight.

Dendritic salt should be cheaper to the Nigerians, and this should help us in competing with the German salt. On the other hand, the Nigerian country farmers are extremely conservative and prefer to stick to exactly the goods to which they are accustomed. In Lagos town—the big town on the coast where there are many Europeans—the Africans have taken to dendritic salt in preference to any other kind. There are other areas here and there where dendritic salt is becoming popular, and there seem to be good reasons for thinking that dendritic salt sales will gradually build up.

A NEW TOOL FOR ARCHAEOLOGY

By F. H. Peakin (Central Purchasing Department)

Radioactive carbon, which is carbon originating from the cosmic rays of the upper layers of the earth's atmosphere, has placed in the hands of archaeologists a new weapon for measuring the age of antiquities. Briefly, this radioactive carbon can be used as a yardstick to measure the passage of time by means of calculating its losses due to radiation. Here is a short account of the new technique.

THE great ruins of Zimbabwe in Southern Rhodesia have been the subject of much speculation recently, and the question of their age has been answered by archaeologists with widely differing estimates. By what culture these curious buildings were erected in this remote place and what their purpose could have been, and to which deity they were consecrated, are questions which have puzzled investigators since the ruins were discovered.

A new technique provided by atomic physics has now been applied to this mystery, and it indicates a date of about A.D. 500 for the completion of the buildings. They had not been considered to be so old according to the other evidence available.

This is how the new method is applied.

Coming from the depths of space, the mysterious cosmic rays enter the upper layers of the earth's atmosphere and some of them expend their enormous energy in producing those particles called neutrons which the public heard so much about when the first atomic bomb was exploded. Some of these neutrons collide with atoms of nitrogen in the upper atmosphere and produce, by atomic transmutation, atoms of carbon; but although chemically identical with the ordinary carbon we know, this new carbon—C^{14}—is different: it is radioactive.

This means that, no matter in what chemical form they are combined—soot, carbon dioxide, part of a sea-shell or of a living plant or animal—the atoms of this carbon are breaking down at a fixed rate which cannot be changed by any conditions existing on the earth, and in so breaking down give nitrogen again together with radiation. Although the carbon breaks down slowly (a sample takes over 5000 years to lose half its activity) its radiation can be measured by the very delicate instruments with which the atomic physicist detects radioactivity.

The radioactive carbon fairly soon gets evenly distributed in all the other carbon in circulation in the world, whether in the air, in living matter or dissolved in the sea, where most of it is stored. It is supposed that the process has been going on for so long that the rate at which the new radioactive carbon is being formed by the cosmic rays in the upper atmosphere is just balanced by the rate of decay.

Thus all living matter, and some forms of mineral carbon as well, takes up a definite share of radioactive carbon which exists all around it. When it dies, however, it ceases to breathe and feed and thus to renew its store of radioactive carbon, but what it already contains goes on decaying. Thus, the wood of a tree recently cut down will have its full share of radioactivity; coal, on the other hand, has been buried for so long in the earth, since the death of the forests which formed it, that no trace of radioactivity remains in it.

Here, then, we have the means of finding the age of a piece of wood or a skull, or a sea-shell, or wheat grains from an Egyptian tomb, by measuring the radioactivity which remains in it.

ZIMBABWE RUINS IN SOUTHERN RHODESIA. *Originally thought to be fifteenth-century, these ruins are now dated as sixth-century by means of radiation measurement.*

REMAINS OF AN ELLIPTICAL TEMPLE AT ZIMBABWE, *constructed of boulders and stone*

The calculations are not simple, the preparation of the material before the measurement can be done is tedious and the possibilities of error are considerable; but with the aid of samples of known antiquity, e.g. from Egypt and Babylon, the method has been checked and found to be reliable.

It is best applicable to materials between 500 and 20,000 years old and, particularly in the hands of Professor Libby of the University of Chicago, is giving fascinating information about the age of archaeological and geological finds all over the world. When, recently, two pieces of wood were discovered in one of the inner walls of the great elliptical temples of Zimbabwe, their examination by the new method was awaited with much interest and the result is mentioned above.

We shall undoubtedly hear of many more applications of this technique, but that it will be applied to more recent objects, such as early editions of books, manuscripts, etc., seems unlikely at present.

CONTROL OF EPILEPSY

By D. P. Allen (Pharmaceuticals Division)

Promising results in the control of epilepsy are shown by a new drug discovered by I.C.I. research chemists since the war. This drug, called 'Mysoline,' is being extensively tried out not only in Britain but also in the United States, in Canada and on the Continent. Here is the story of its development.

AND, LO, A SPIRIT TAKETH HIM, AND HE SUDDENLY CRIETH OUT; AND IT TEARETH HIM THAT HE FOAMETH AGAIN, AND BRUISING HIM HARDLY DEPARTETH FROM HIM. So wrote St. Luke, Graeco-Roman physician and evangelist.

Modern science threw a fresh light on the mystery of the actual cause of epilepsy when it was discovered that rhythmic electrical changes occur in the brain of all animals throughout life. These changes were first described by Berger in 1924.

It is literally true to say that all of us have continuous brain waves, both when we are asleep and when we are awake. The minute electrical currents in the brain respond in a sensitive way to changes in mental activity as well as to changes in the composition of the blood. They take on a peculiar recognisable form during the occurrence of an epileptic fit, and even at ordinary times persons who are subject to epileptic attacks usually show some peculiarities in their brain waves.

The machine which enables these waves to be studied is called the electro-encephalograph. This apparatus is merely an electronic amplifier of great power connected to a recording device, usually a cathode-ray oscilloscope, which records the waves. The more electrodes there are, the more comprehensive the picture of the cerebral activity.

Today it is customary to have a series of six or eight units of this set reading simultaneously so that the activity of several areas of the brain can be studied at the same time. The voltage of the actual brain wave is minute, but the amplification is sufficient to allow recordings through the scalp by means of small electrodes. The pattern of the rhythms traced varies in different individuals and also in the same individual at different ages.

In man, a characteristically dominant rhythm is present of about nine waves per second, called the alpha wave. This is often superimposed on faster waves (beta) and slower ones (delta). The different kinds of epileptic attacks are associated with specific patterns, and careful observation of these is of great value in diagnosing the form. Unfortunately for the clinician, all epileptics do not give abnormal records, while some normal people do.

The object of treatment being to suppress the attacks completely, the drugs used in achieving this are called anticonvulsants. Bromides used to be the mainstay of treatment, and supporting therapy included preparations of belladonna and boron, e.g. borax, although the real role of the latter was not fully understood.

A great advance was made, however, when phenobarbitone was discovered in 1912. Unfortunately this drug has also a powerful sedative effect, and in a great many cases the fits can only be brought under control at the expense of keeping the patient more or less permanently drowsy. Many other drugs were later developed, but they all possessed quite definite limitations and drawbacks. In an endeavour to overcome these limitations some are used in combination.

Recognising that epilepsy still presented a major problem in the social life and health of the community, I.C.I. as far back as 1948 embarked on an extensive programme of research at their biological laboratories to discover a new drug which would be superior to those already in existence. If possible, the drug should be less toxic and free from hypnotic or sedative effects. In 1949 their two scientists Drs. Bogue and Carrington found a new anticonvulsant drug which is now known as 'Mysoline.'

'Mysoline' is chemically quite different from the other drugs in use and is described as 5-ethyl-5-phenyl-hexahydropyrimidine-4:6-dione ! Experimentally, this compound was shown to be a very powerful anticonvulsant and yet was of low toxicity and free from hypnotic effect.

The first clinical trials proper were carried out in a well-known epileptic colony near Manchester. Two years have elapsed since these trials were initiated, and the results have now been published in the medical press. They showed that 'Mysoline' could control effectively epilepsy of the type known as "grand mal" and there are indications that it will control other types as well. At the same time this new treatment resulted in a striking improvement in the mental activity and general well-being of the patients who had previously been treated with drugs which possessed the undesirable sedative effects of phenobarbitone.

The early results were so promising that neurologists in many hospitals in this country and also in Canada and U.S.A. and on the Continent decided to conduct extensive trials with the drug. Indeed, one eminent neurologist has already reported that 'Mysoline' appears to have a considerable future as an anticonvulsant. Today an increasing number of patients throughout the country are being put on 'Mysoline' treatment and many of them are deriving considerable benefit from it.

DOING THE FLOWERS

By Constance Villiers-Stuart

Beautiful flower arrangements are rarely achieved by just whim and fancy. They are the expression of a simple but lovely art, underlying which—as in all arts—are certain principles of colour values. Here are a few examples, done with autumn flowers.

YEAR by year as life grows more complicated, machines replacing the old handicrafts, even music-making succumbing to some extent to the radio, we tend to know more about things but to create fewer of them ourselves. There remains one lovely but simple art, one form of self-expression which defies regimentation—"doing the flowers." We may not play musical instruments, paint in oils or draw in water-colours, but we can, if we care to, paint pictures from our own garden. And autumn with its wealth of garden flowers is a good time to start.

Now the first thing to think of in doing the flowers is: how will they look in the room as a whole; what will be the complete picture ? This opens up the question of colour schemes. Certain colours appeal to some people more than others. That is noticeable. But there are a few simple principles in colour arrangement, as in all the arts. The first two are contrast and harmony.

There is the contrast of a cool colour and a warm one, such as blue sea, yellow sand, grey smoke, scarlet flame, and the warm harmony of the autumn woods. But there are cool harmonies as well as warm harmonies: the woods in spring, with pale green beech leaves and bluebells at their feet. So, broadly speaking, colour arrangement falls into three main schemes—contrast, warm harmonies, and cool harmonies—with infinite subdivisions according to the material used and the personal taste of the decorator.

The colouring of the room is therefore all-important, as walls and curtains provide the background to our flowers. With a simple scheme such as cream walls and green curtains almost any flower arrangement looks well. In autumn there is a very rich choice—gladioli, dahlias and outdoor chrysanthemums being three of the most popular flowers today in every cottage garden. For such a room try a warm harmony of coral, buff and scarlet, carried out in dahlias with copper beech leaves or any other dark foliage, and it will look most exciting. Or if it is a hot, sunny day, a cool harmony of white gladioli or the lovely white dahlia Helly Boudewyn, with long stalks and lasting qualities, arranged with a fountain of snowberries, is very refreshing.

In a south room with grey-blue walls a blue earthenware bowl filled with mauve autumn crocuses and pink, mauve, and lemon-coloured pompom dahlias makes an attractive accent in the centre of a round table. Pompom dahlias are delightful picked, either in bowls by themselves or mixed with other flowers. Later in the autumn, Michaelmas daisies and rose and pink chrysanthemums carry on the pastel scheme.

For a room with yellow walls something stronger is needed. This is the place to use some of the autumn fruits among the flowers. Yellow chrysanthemums and peony leaves which turn such a beautiful colour look well arranged in a pewter tankard with branches of rosy crab-apple and purple damson. With this background or a dull green one do not be afraid of brilliant schemes of scarlet, orange and lemon, easily carried out in dahlias or zinnias. Bowls and vases of blue and white Oriental china look particularly well in a yellow room.

If instead of a modern house or light eighteenth-century one an old Tudor cottage with dark panelling has to be dealt with, shades of red and scarlet will look extraordinarily well at night. And on the window-sill or in the centre of the room a very striking effect in daylight is produced by a shallow oval dish arranged with the popular dahlia Mrs. Marks Memory, sprays of decorative purple spinach, and every shade of scarlet, red, purple and mauve pompoms. With this dark background white groups are always lovely, especially warmed by a touch of shell pink. And marigolds of every shade of yellow will show like a patch of sunshine in the room.

There has been a fashion for bowls arranged in tight cushions of pure colour. Geraniums of every shade, especially coral and scarlet, look well like this. But dahlias done in this way are apt to be too heavy. Sometimes in

FOR A YELLOW ROOM. *Yellow chrysanthemums and red peony leaves with branches of crab-apple and damson in a pewter tankard.*

autumn one can find a little late clematis, which looks pretty in a flat bowl. In spite of their thin stalks they last a long time.

With a pale grey background where a contrast is needed, one of the best colour schemes is scarlet and white, say the Australian dahlia White Cloud, with a red one and purple sumach leaves. It is always a problem what foliage to use with dahlias, for their own buds and leaves must be cut off if the flowers are to last in water. Great feathery sprays of asparagus, just turning yellow, with little red berries are surprisingly effective with dahlias such as Kentucky, White Cloud and the splendid dark maroon Sancy. Incidentally, asparagus used on a small scale spoils many flower decorations, especially sweet peas and carnations.

Coral and scarlet have to be renounced when the frost cuts off the glowing dahlias and salvias. But there is great charm in the muted pinks and Burgundy reds of the outdoor chrysanthemums, which go so well together. If we need pure, brilliant colour there are plenty of bright yellow chrysanthemums to go with the autumn leaves and berries. An oval vase of Apricot Wallace, Crimson Velvet and pale lemon Dorothy Jackson will give us all the force of colour we require.

In all flower arrangements form is most important. One has only to try to paint or photograph flowers to see

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FOR A GREEN ROOM. *A cool harmony of white dahlias—Helly Boudewyn—arranged with a fountain of snowberries.*

how true this is. Here the amateur is most likely to fail. A common fault seen over and over again, when judging at flower shows, is the vase too big for the flowers. A rule for general use is to have the flowers you are arranging at least one and a half times the height of the vase; if it is a bowl, one and a half times the width of the bowl: the accent must be one way or the other—tall or wide—as in architecture.

It may be interesting to note that at the moment there are two main trends in modern flower decoration—English and American. The Americans have been greatly influenced by Japanese tradition, originally a delicate composition of lines seen against a flat background with no suggestion of depth; and with the Japanese fondness for curious stunted trees with asymmetrical growth the flower lines follow the same suggestion. Few flowers are used in a composition, and this suits American ideas, as few people have gardens.

We, I think, have been more influenced by Dutch flower painting with its lavish use of flowers which our national love of gardening can supply. Perhaps the most interesting vase to try to do is a mixed group in the style of the old Dutch painters. One can learn a lot from studying pictures and postcards of the work of men like Cornelis de Heem and the three Van Huysums, whose favourite subject was an urn or basket of flowers standing on the corner of a stone balustrade. If you try to copy a picture you will see that they used all kinds of blooms, many of them not likely to be out at the same time, which shows that they painted from sketches of individual flowers and arranged them afterwards to suit their composition. It will also be noticed how they used one or two large solid blossoms—peonies or lilies—to give weight and balance to the whole design.

When starting to fill a vase it is a good plan to begin with the fullest spray of foliage or flowers. Then, placing

FOR A BLUE ROOM. *A blue earthenware bowl filled with mauve autumn crocuses and pink, mauve and lemon pompom dahlias.*

the main accent on either side, fill in the outline. On the other hand, if a bowl is being filled it may be easier to start at the two sides and get the width right first, seeing that the side stalks are safely placed in the water. If you are using a number of small flowers it is better to group them in two or three bunches rather than speckle them about. Sweet peas are flowers that gain from being used in blocks of different colours.

A practical detail often forgotten is that flowers need fresh water every day to replace what they drink up in twenty-four hours. The best way is to use a seed watering-can with a long, slender spout, and add the water without disturbing the general effect. To ensure that shrubs and hard-stalked flowers will last it is necessary not only to place them in a bucket of warm water as soon as they are picked and leave them there for an hour at least (all flowers are better for this treatment), but hard stalks must be hit with a hammer for an inch up the stem first. This is much more effective than peeling the bark and less troublesome.

A hammer in the garden is as useful as the scissors. The stalk fibre crushed to pulp drinks up the water without any difficulty, and large chrysanthemums last for days, even weeks, as crisp and fresh as if they had just been picked. And if you want to arrange flowers and make them stay put, and at the same time look graceful and natural, use wire netting in your bowls and vases. No other support is so good.

OLD SILVER

By Cedric Jagger
(Central Publicity Department)

A curious phenomenon of our age is that, because of purchase tax, solid Victorian silver is today often cheaper than the modern plated article. Here Cedric Jagger, himself a keen collector of silver, explains the intricacies of buying silver and spotlights some of its pitfalls.

OWING to purchase tax, the buying of second-hand solid silver instead of new plated ware is often today a sound financial proposition. It is also a fascinating hobby. There is no shortage of Victorian, William IV or even late Georgian silver on the market. As with all second-hand goods, prices vary quite considerably, a state of affairs which can be turned to good account by the shrewd buyer. Some knowledge is necessary, and a long patience; but, armed with these, there are still plenty of treasures for the casual collector to unearth.

For example, a barrow boy offered me the other day a salt spoon which, according to him, was "French, and of course not hall-marked." In fact it was English, early eighteenth century, and had once belonged to a so-called trencher salt. A proper hall-mark would have disfigured it hopelessly, owing to its small size, but there were definite traces, as I expected, of a maker's mark. It was not dear at half a crown.

By occasional purchases such as this it is quite possible to build up piece by piece a service of table silver sufficient for individual needs. Solid silver has many advantages over the plated article. It wears for ever if you do not scour it with harsh abrasives; it will keep its colour and brilliant surface; and the bogey of irksome cleaning can, with the aid of modern impregnated cotton wool cleaners, be driven away for ever. Plated ware, the best of which is rarely warranted for more than thirty years, puts up a very poor show in comparison with this.

For anyone without a great deal of experience who wishes to pick up odd pieces of silver at the right price, it is a good idea to begin by buying forks and spoons, and to resist the temptation of the bigger articles such as tankards.

"Flat" ware, as the trade calls it, is not valuable enough to fake. The modest purse can easily be stretched to encompass the purchase of an odd spoon or fork from time to time, and from each piece something fresh can be learned. The pieces thus acquired, except for the occasional bargain, will probably range over the period from 1780 to the beginning of this century, since silver dating before that time is now rather scarce and correspondingly expensive. Even late Georgian silver now commands a small premium over, say, Victorian.

Patterns in flat silver are most important. The most popular are Old English and Fiddle, and both are traditionally devoid of any decoration, relying for their effect on the simplicity of their line. The former is most in demand today, since the proportions of some Fiddle pattern silver do not please modern taste. King's pattern silver exhibits some fine chased decoration. The main thing to bear in mind, however, is that differing patterns

do not mix, and, having decided which pattern you intend to collect, you must stick to it.

Second-hand table silver can be bought most cheaply in single pieces or pairs; matched half-dozens or larger quantities are best left to the serious collector. He will insist on matched hall-marks, anyway, whereas this is quite unimportant to the user-collector, who merely needs his silver to look as if it all came from one canteen.

Meaning of Hall-marks

Hall-marks, the "identity card" of a piece of solid silver, are hand-punched by the assay office or "hall" after the metal from which it is made has been tested and found to conform to a certain approved specification. In this country, for instance, all hall-marked silver is guaranteed to be of sterling quality, while Continental countries have other standards of purity.

When properly interpreted, these marks provide an astonishingly interesting case-history of the piece on which they appear. A full set of hall-marks may consist of as many as five separate punches, which represent the year of manufacture, the assay office at which the metal analysis was carried out, the quality mark, the duty mark (if the law required tax to be paid on silver goods at the time of manufacture), and finally a symbol representing the actual maker. This last was, of course, applied by the maker himself after his goods had passed examination by the assay office, and set his seal, as it were, on the completed article.

It would require a prodigious memory to be able to read at sight the correct meaning of every set of hall-marks, and luckily this is never necessary. Convenient pocket-size tables of hall-marks for English silver can be obtained at small cost. Marks used by Continental countries are very much more difficult to trace and not nearly so reliable, which probably explains why English sterling silver is valued so much more highly than any foreign product.

While the exact interpretation of English hall-marks can always be left to the reference tables, it is essential to be able to distinguish at a glance between English and Continental markings for solid silver and also to be able to differentiate between silver marks and those applied to Sheffield plate and pewter. This is relatively easy once the system used in the marking of silver goods has been understood, for it is a most logical one.

To build up a service of table silver by easy stages, it is just as well to have some idea of the characteristics of the different periods. For example, the round-bowled soup spoon is a product of mid-Victorian times, and anyone who decides to collect only late Georgian silver will have to use tablespoons for soup. Throughout all the periods, however, very long handled gravy spoons were made which are admirably suited for serving vegetables in place of tablespoons. These gravy spoons are, unfortunately, rather expensive, being the largest article of flat silver made, apart from the enormous soup ladles for which nobody has any use nowadays.

Teaspoons are found in several different sizes, ranging from those big enough for the breakfast grapefruit to a small variety equally suitable for use with tea or coffee cups. Spoons of the earlier Georgian periods usually have oval bowls, sometimes with a "rat's tail" ridge along the back which is extremely pleasing. Bowls get more pointed in the later periods.

Forks should be found quite easily in the familiar sizes, although again it is unwise to restrict oneself to a particular period. Dessert forks, for instance, appear to have been made in very small numbers throughout all the Georgian periods, and certainly never equalled the large number of spoons of the same size which were made. Still, this deficiency was made good in the reigns of William IV and Queen Victoria.

Practically every piece of table silver will be engraved with the monogram or crest of a previous owner. These are not by any means undecorative even if noticeable, and often they are situated on the under side of the article where they are quite inconspicuous. In any event they should not be removed, for they cannot be filled in and would have to be rubbed off on a jeweller's stone. This would mean removing a lot of the surrounding metal, which would weaken the whole article.

Decline in Faking

Flat silver is almost invariably genuine, and is therefore a safe proposition for the inexperienced collector. Unfortunately the larger pieces of silverware are by no means always what they purport to be and should always be treated with suspicion until their authenticity has been determined. The hazards which the collector of this class of silver has to face are deliberate faking, mutilation, and the "unhappy marriage" of the detachable parts of one article with the bulk of another—for instance a teapot with a "wrong" lid.

Faking of antique silver is not so prevalent nowadays as in the past, mainly because it is very difficult to do with success and needs all the experience and skill of a first-rate craftsman. In any event it is really only worth while with an article which might be expected to sell for a very high price.

The commonest method is to cut the hall-mark out of a small article of an early period and "sweat" it on to a much bigger article of a later period whose correct hall-mark has also been removed. Apart from the incongruity in style which this produces, for every period had well-defined

TABLE SILVER OF THE EIGHTEENTH AND NINETEENTH CENTURY. *The latest piece, the pepper pot, is hall-marked 1909. Present-day prices for late Georgian silver range from 5s. for a teaspoon to about £1 for a tablespoon. The extra large gravy spoons (centre) may cost between £2 and £3 each. The cut glass and silver George IV mustard pot was a bargain at £1, but Victorian components of the cruet can be found quite easily at this price or less.*

TWO TEAPOTS: *the "family" one (right) was made by William Frisbee, London, in 1797; the flamboyant little "tea for two" pot was made in 1836 by the firm of Edward, Edward, John and William Barnard, also of London. In the background is a silver kingfisher.*

trends in design, it is quite likely that there will be a difference in colour between the metal containing the applied hall-mark and the rest of the article. This will give the show away at once.

Mutilation of old silver is, unhappily, much more common, and can be attributed almost entirely to Victorian silversmiths. While having no fraudulent intent, they just could not restrain themselves from "improving" everything on which they could lay their hands. The process they used consisted of filling with hot pitch the tankard, teapot, or whatever large hollow article they intended to decorate. When the pitch had cooled, the decoration was hammered on to the outside surface and the pitch reheated and poured off. With a little hand finishing the job was completed.

As a result of this, many magnificent pieces of early silver have entirely lost their beautiful lines and classical simplicity, and lost at least half their present-day value into the bargain. This type of "working over," as the trade describes it, is most commonly found in sugar and pepper castors, tankards, and muffineers, the small castors used for sprinkling sugar or salt on to muffins. We should be grateful that the process was unsuitable for anything but hollow goods and that flat ware remained immune from it. It is sometimes possible, in the case of a particularly early and valuable piece of silver, to have this added decoration hammered out again by a reversal of the process just described, but the metal will rarely stand the strain of more rough treatment and produces tell-tale shadows which reveal the whole sad story.

The history of the silversmith's craft, dating back to the twelfth century in this country, has, like every other craft, its famous names. The work of such smiths as Paul Lamerie and Hester Bateman is known the world over. But people with no specialised knowledge appreciate silver for its intrinsic beauty. Collecting silver can become a fascinating hobby which will give lifelong pleasure, particularly as the companion to good food.

I.C.I. NEWS

JEALOTT'S HILL CELEBRATES 25th ANNIVERSARY

"We can again become a nation of meat-eaters, not seeking frozen favours from foreigners but independent, relying solely upon ourselves and the Commonwealth."

This tempting challenge was issued by Mr. S. W. Cheveley, chairman of Central Agricultural Control, when he proposed the toast "Agriculture" at the 25th Anniversary luncheon of Jealott's Hill Research Station on 15th July. "To do this," Mr. Cheveley said, "does not call for the drastic changes in our deep-rooted agricultural society and traditions which some of the theorists envisage. But it does require confidence, capital and education."

The Minister of Agriculture, the Rt. Hon. Sir Thomas Dugdale, T.D., M.P., and some 250 of the country's leading scientific agriculturists, farmers and representatives of agricultural interests had been welcomed to the luncheon by Dr. Alexander Fleck, Chairman of I.C.I. Although the celebration was held on St. Swithun's day the weather was kind, and only one shower marred a day of sunshine during which the guests, armed with a commemorative brochure specially written by Sir William Gavin, were taken on tours of Jealott's Hill and Hawthorndale. An unlooked-for but happy diversion was the appearance directly over the Station of 600 aircraft on their way to Her Majesty's review of the Royal Air Force at Odiham in Hampshire.

In his speech Mr. Cheveley described the emotion and pride felt by all who had seen Jealott's Hill grow from its inception a quarter of a century ago by Sir Alfred Mond, Lord McGowan and Sir Frederick Keeble. In the beginning the theme of I.C.I.'s agricultural research work had been higher production through better use and understanding of fertilizers. But they had soon discovered other products of value to farming, and so had developed a trinity of effort embracing crop production, plant protection and animal health.

Speaking of what he called "our greatest natural asset, the 18 million acres of grassland under our feet," Mr. Cheveley said: "We believe that by higher production from these 18 million acres of grass we can double pre-war output of food, and unless we do this I fear our children or grandchildren may well criticise us who are farming today for being content with such small yields."

Sir Thomas Dugdale, replying, said: "You and your fellow research workers have seven-league boots to offer us, and magnificent boots some of them have been. With your help British agriculture is taking longer and longer strides forward; if it can stride over the target of 60% greater production than before the war and up towards the 70's within the next three years, I for one shall be more delighted than surprised."

Sir Thomas paid tribute to the work of Jealott's Hill over the last twenty-five years and to the work of Hawthorndale and Fernhurst. He referred particularly to grassland management, the conquest of wireworm with benzene hexachloride, the discovery of the first hormone weedkillers and the solution of

The Minister of Agriculture, Sir Thomas Dugdale (right), with (right to left) Dr. Alexander Fleck, Mr. Cheveley, Sir Reginald Franklin, Dr. A. H. Lewis and Sir Alan Hitchman at Jealott's Hill

Guests touring Jealott's Hill and Hawthorndale on the 25th anniversary hear Dr. C. C. Tanner explain his work

the Somersetshire teart pastures problem. "Rumours have reached me," he said, "that the I.C.I. hounds are also hot on the scent of the potato eelworm. I am sure all farmers will wish them good hunting.

"Looking back over the history of Jealott's Hill, one thing that strikes me in particular is the combination of flexibility and tenacity it has shown. Arable crops and grassland, root development in cereals and selective weedkillers, the rotation of crops and animal health, have all received attention. Mr. Cheveley asked whether I had any message or task for you. You seem, if I may say so, well able to be your own taskmasters, and pretty hard taskmasters at that. If I gave you a message at all it would be: Go on as you have begun, tackle each new problem as it arises, turn your trained minds and tried techniques on to each different aspect of farming as the situation demands and opportunity offers. In short, continue to be as ready as ever to do what politicians are popularly supposed to do, and explore every avenue that may lead to increased agricultural production."

Speeches were also made by four distinguished former members of Jealott's Hill staff: Mr. Harold Page, who left to become director of the Rubber Research Institute in Malaya and was afterwards director of the Imperial College of Tropical Agriculture in Trinidad; Lt.-Col. W. R. Peel, D.S.O., who was one of the first arrivals at Jealott's Hill and instituted most of the early work on grassland; Professor S. J. Watson, Professor of Agriculture in the University of Edinburgh; and Professor G. E. Blackman, Professor of Agriculture at Oxford.

Jealott's Hill on the B.B.C.

Listeners to the B.B.C.'s Radio Newsreel on the evening of the Jealott's Hill anniversary heard the outspoken comments of 700 I.C.I. employees who had been excluded from the celebrations and kept in a hot, moist room all day without a meal. They were African locusts, bred for the purpose of testing new insecticides.

The Radio Newsreel reporter also interviewed Dr. Michael Geoghegan, head of the Station's microbiology section, who is engaged in experiments with an unusual food crop: algae, the tiny plants which make up the green scum on a stagnant pond. However unappetising this may sound, it has, according to Dr. Geoghegan, a pleasant, sweetish taste resembling spinach, and is more nutritious, weight for weight, than pork chops or fresh herrings.

NIGERIAN POLITICIANS AT I.C. HOUSE

Some 50 Nigerians, representing all political parties of Nigeria, were the guests of the Chairman and Directors of I.C.I. at a reception held at Imperial Chemical House last month.

The Nigerian politicians were in London to confer with the Colonial Secretary, Mr. Oliver Lyttelton, on the new Nigerian constitution. At the reception Mr. R. C. Todhunter, Overseas

Dr. Nnamdi Azikiwe, the Hon. Ahmadu and the Hon. Obafemi Awolowo examine an 'Ardil' scarf with Mr. Todhunter

Director, gave a short talk outlining the scope of I.C.I.'s operations. He referred particularly to those I.C.I. products which are playing an important part in the development of Nigeria.

Before leaving each guest was given an 'Ardil' scarf.

MR. CHAMBERS ON LONDON TRANSPORT ENQUIRY

Mr. S. P. Chambers, a deputy chairman of I.C.I., was in July appointed chairman of the committee of enquiry into London Transport set up by the Ministry of Transport.

The committee has seven other members. Its terms of reference are "To enquire into the conduct of the undertaking carried on by the London Transport Executive (excluding any

questions relating to charges) with a view to ascertaining what practical measures can be taken by the British Transport Commission and the Executive in order to secure greater efficiency and economy."

HEAD OFFICE

Deputy Sales Controller Appointed

Mr. J. H. Townsend has been appointed Deputy Sales Controller, with effect from 1st September.

Mr. Townsend is no newcomer to I.C.I.'s selling organisation, having been joint deputy regional manager of Southern Region for two years from 1950. Before that he had a variety of administrative experience in the Company: at Billingham and Southern Region, in Technical Department and the directorate staff, and as Assistant Purchases Controller. Since the beginning of 1952 he has been head of Office Administration Department and has been responsible for the advice on organisation and methods which the department gives, and for the research and development which it carries out.

ALKALI DIVISION

Long Service Family

A Winnington pensioner himself, the father of two Winnington pensioners, and the grandfather of two workers now at Winnington—that is the proud record of 93-year-old Mr. Ben Williamson.

Mr. Williamson and his sons Arthur and Simeon were three of about 600 pensioners present at a garden party given in the grounds of Winnington Hall Club recently. Mr. Williamson bears his years lightly: he takes a daily walk, reads, listens to the radio, and until quite recently enjoyed his game of bowls. Although he contends that in his day everyone worked a great deal harder, he does not disapprove of modern life or newfangled inventions. He enjoys television, for instance, and

93-year-old Mr. Ben Williamson with his two pensioner sons, Simeon (left) and Arthur

was glad to see on a neighbour's set the Coronation and the Cup Final.

Mr. Williamson retired from Brunner, Mond & Co. in 1927. One of his most treasured possessions is a gold watch and seal awarded him for 40 years' service.

BILLINGHAM DIVISION

Foreman's Three Graduate Sons

July 4th was a proud day for Mr. Jim Charnley, foreman plater in Area 3 Engineering Works Services, and his wife. At King's College, Newcastle, they saw their two younger sons receive their degrees, and that meant that their family of three sons had all graduated. Two of them began their careers as apprentices with I.C.I.; their father has had 26 years' service with the Company.

Jack Charnley, aged 29, the eldest son, obtained a B.Sc. (Engineering) at Constantine College three years ago. He had been awarded an I.C.I. scholarship while he was an apprentice in the Billingham instrument laboratories. Now he is a lecturer at Northampton Polytechnic College.

Albert, aged 27, and Billy, 25, complete the trio of brainy sons. Albert's bent is for civil engineering, in which he obtained his B.Sc. Billy graduated as a B.A. with second-class honours in town and country planning. Albert was an apprentice in the civil drawing office at Billingham and Billy was articled to an architect. Both served in the army and obtained commissions in the Royal Engineers.

Another Billingham employee whose son received his degree at the same time is Mr. George Hume, a fitter in Gas and Power Works coke oven maintenance and an A.E.U. shop steward. His son Kenneth obtained a B.Sc. (Civil Engineering) at King's College.

Synthonia Members do well at Bisley

Ten members of the Synthonia Miniature Rifle Section were among the thousand competitors from Britain, the U.S.A., Scandinavia and the Commonwealth who took part in the National Small-bore Rifle Association's annual meeting at Bisley in July. They included Mr. P. B. Evans (Nylon Construction), who was one of the three members who took part in the difficult Class A competitions, his wife, who competed in Class D, and their daughter, Miss Margaret Evans. Miss Evans, who also shot in the Class D events, was taking part in a Bisley meeting for the first time, as were two other women members of the section, Miss Joyce Wade and Mrs. G. Grey.

One of the most successful of the section's representatives was Mr. N. Ackroyd, Synthesis Plant Manager in Ammonia Works, who with Mr. Evans and Mr. H. Kealey competed in the Class A shooting. He gained equal firsts in the "through the range" shoot and the 25 yards rapid fire competition by scoring the maximum possible points, was chosen to shoot for Scotland in an international match and scored an aggregate of 1585 out of a possible 1600 in the Class A shoots. Although this was 12 less than the record by the American who won the event, and below the figures reached by a number of other competitors, it was only two under the previous record of 1587.

Mr. Evans was unfortunate in not winning the coveted *News of the World* Trophy. He scored maximum points in the 50 and 100 yards shoots but dropped his first shot at 25 yards.

Mr. George Hartley (Engineering Workshops) and Mr. J. Horan (Nylon Works Machine Shops) both shot well in the Class B contests. Mr. Hartley was first in two competitions and third in the grand aggregate contest and Mr. Horan was second in an event in which each competitor had to fire two cards at 50 yards and two at 100 yards.

DYESTUFFS DIVISION

New Director Appointed

Mr. G. S. J. White, Chief Colourist of Dyestuffs Division, was appointed Division director in charge of Technical Service Departments on 1st August. He succeeds Dr. F. J. Siddle, who has taken up the post of managing director of the 'Terylene' Council.

Mr. G. S. J. White

It is 24 years since Mr. White joined Dyestuffs Division's headquarters at Blackley. He is a Londoner by birth and came straight from Oxford University to the Leather Section of the Dyehouse Department, where he worked for nine years before he took charge of the Application Research Section. In 1942 he was promoted to the position of Assistant Chief Colourist and two years later became head of the Dyehouse Department.

Mr. White during the course of his career has travelled widely on the Company's business and has campaigned in India, South America, U.S.A., Canada, New Zealand, Australia, and most of the European countries. Away from business his principal activities have to do with the Society of Dyers and Colourists, where he is a member of the Council and chairman of the Lancashire Section, and with the Textile Institute of which he is a Fellow. He has also concerned himself in the affairs of the Manchester College of Technology and recently completed his third year as external examiner in the Textile Chemistry Department.

In spite of these varied activities Mr. White still finds time to indulge in gardening, music, cinematography and poetry, although his outside interests are by no means restricted to these hobbies. He is a family man and has three daughters; the eldest is reading medicine at Somerville College.

Soprano wins High Praise

Miss Jean Dent, a tracer in the Huddersfield Works drawing office, earned very high praise for her soprano voice when competing in the Robertshaw music festival at Bingley in June. Her voice was described as having a bell-like quality and purity of sound, and the three adjudicators—Mr. Leon Goossens, Dr. Melville Cook and Mr. W. Stanley Vann—praised Miss Dent's diction and said that they had been impressed by her performance.

Miss Jean Dent

Miss Dent was one of the two outstanding competitors at the festival, which this year attracted 492 entries. She won the soprano open class, for which there were 36 entries, and the Silver Harp Trophy; this was the festival's highest award and was competed for by the winners of the soprano, tenor, contralto and bass or baritone solo classes.

This success is the latest of a number gained by Miss Dent in musical events. She has been singing in public since the age of 15 and by the time she was 17 had won several awards. This month she is going to Bridlington Spa Royal to compete in the final of an amateur talent contest for which she qualified earlier this year.

GENERAL CHEMICALS DIVISION

Portrait of a Pioneer

In the offices at Tower Building, Widnes, an oil painting has recently been hung of one of the pioneers of the heavy chemical industry who had many associations with Widnes—William Gossage.

The story of how the Division obtained this picture goes back to December 1951, when Wednesbury Works was observing its centenary. A dinner was held to celebrate this event and among the guests was Miss Kitty Hunt, great-granddaughter of William Hunt, who founded the firm of William Hunt & Sons at Wednesbury. Miss Hunt mentioned that a portrait of William Gossage had been in her family for many years and asked if the General Chemicals Division would like to have it, an offer which was gladly accepted.

William Gossage, whose portrait has been given to General Chemicals Division

Gossage became a partner in the British Alkali Works at Stoke Prior in 1830 and after experience of chemical manufacture in various parts of the country finally settled in Widnes in 1850. Perhaps his most notable invention was his tower for condensing muriatic acid gas, which played a most important part in the establishment of the heavy chemical industry, but he also applied his inventive genius to the manufacture of lead pigments, the recovery of sulphur from alkali waste, the recovery of copper from pyrites and the production of soda by the ammonia process.

LEATHERCLOTH DIVISION

Legion Standard-bearer

The coveted title of County Standard Bearer of the British Legion for Cheshire has gone this year to Mr. William Turner, a spreader at Hyde.

Mr. Turner has been challenging keenly for this honour. He was third in the competition in 1951 and second last year.

Mr. William Turner, British Legion standard-bearer for Cheshire, pictured with his counterpart of the women's group

He will now go forward to represent Cheshire in the North-west Area competition, the winner of which will take part in the next national contest.

Mr. Turner served with the 6th Battalion, the Cheshire Regiment, during the war and has established himself as a very smart soldier by taking part in many parades and competitions. He will now hold the county standard and casket for twelve months. After the competition he had the honour of bearing the county standard at the head of the procession to Chester Cathedral for the Legion's county service and for the march-past afterwards.

METALS DIVISION

Mystery Fish landed in Wales

Mr. Howells' monster

Fishing at Llanmadoc Sands in the early hours of 28th June, Mr. D. Howells (Waunarlwydd Works) landed the surprise of his life—a monster fish whose identification has aroused considerable controversy in angling circles.

Local fishermen say it was an angel fish, a species of shark so called because large pectoral fins give it a winged appearance. An eye-witness comments: "The creature was 5 ft. 10 in. long, weighed 45 lb. and had a large mouth filled with numerous sharp teeth. In fact anything less angelic would be difficult to imagine !"

They shot their Way Out

As a postscript to the impressive list of successes scored by Metals Division representatives at the Bisley Small-bore Rifle meeting comes news of a fresh adventure in store for three of their number.

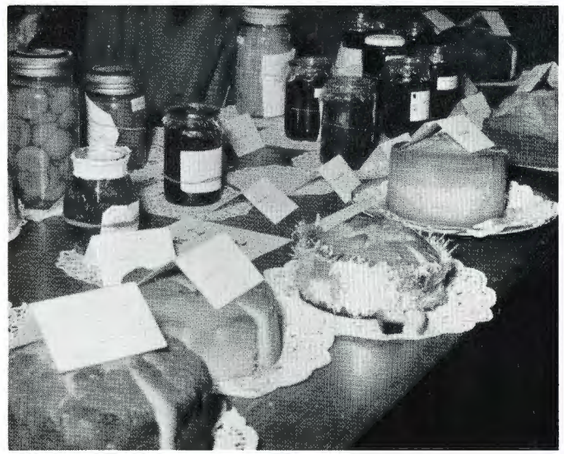
The National Small-bore Rifle Association intends this year to send a team of twelve riflemen to shoot against an American team for the Pershing Trophy. Trial competitions were started during the winter at local clubs and the top thirty-four continued the elimination process at Bisley, the twelve riflemen with the highest aggregates forming the selected team. Three of these—Messrs. W. B. Godwin, J. Hall and T. J. Knight—are Metals Division colleagues.

Messrs. T. J. Knight (left), J. Hall (centre) and W. B. Goodwin (right) have been selected to shoot against America

The keenness of the competition may be gauged from the fact that the twelfth man lost only 10 points in a possible 1600.

Successful Experiment

July saw the death of an age-old tradition at Witton—the belief that its womenfolk were too modest to join in any sort of competitive activity.



A mouth-watering display at Witton's home crafts exhibition

It was with some trepidation that the Kynoch Sports Committee this year included in its programme a home crafts exhibition chiefly for women employees and the wives and daughters of men employees. Could they hope for even a modicum of success, or would the event perish prematurely from lack of support ?

The answer was soon apparent. Long before Sports Day entry forms were arriving thick and fast, and soon the organisers were practically invisible under mountains of carefully packed parcels. In all, more than 300 exhibits testified to skill in cake-making, fruit-bottling, jam-making, embroidery, dressmaking, knitting, crochet, leatherwork, and a host of other part-time pursuits.

The organising inspector of domestic subjects for Birmingham Education Department, who carried out most of the judging, said she had never seen a higher standard of entries in a works exhibition. Her enthusiasm was shared by the rather stunned committee and several thousand spectators who viewed the exhibition on Sports Day.

NOBEL DIVISION

She shot the Papingo

To have shot down the papingo is a distinction that may not mean much to most of us. But in Kilwinning, where they have been trying to do it for some 500 years, it is an honour

Archers and spectators in Kilwinning Abbey kirkyard

indeed, and Miss Jean Guthrie (Accountancy Dept., Sauchiehall Street), the first woman to achieve this difficult feat, is the heroine of the hour.

The Kilwinning papingo (or popinjay) is the sole surviving archery target of a kind popular all over Britain in medieval times. About the size and shape of a plump pigeon and made of gaily painted wood, it sits on top of the town steeple 110 ft. above the ground. To "ding the papingo doune" with an arrow at this range is no easy matter, and the records of Kilwinning's Ancient Society of Archers show that on some occasions no one has succeeded in doing it.

This year, as of old, the members of the society (Miss Guthrie among them) came out to the foot of the steeple in their gay uniforms and squinted up at the target. Then, flexing their regulation 30 lb. bows, they let loose a steady succession of arrows. Some hit the pole supporting the papingo, but it was only after 293 had been loosed that an arrow from Miss Guthrie's bow hit the target fair and square.

In the old days Miss Guthrie's feat would have won her the post of captain of the Kilwinning archers. Nowadays that honour goes to the winner of a contest at the butts, and her reward was a medal inscribed "Kilwinning Papingo, 1953."

The papingo shoot has changed in other ways to accord with modern conditions. Heads in Scotland are not as hard as they used to be, and the archers concede something to the comfort of the spectators in the Abbey kirkyard by using rubber-tipped arrows.

Over the Alps at 76

At 76 years of age Mr. J. Stuart White, who joined Nobel's at West Nile Street, Glasgow, in 1909, is a splendid advertisement for the health-giving qualities of motor-cycling. He has been a devotee of the sport for fifty years and holds membership No. 50 of the Association of Pioneer Cyclists.

Mr. White makes a speciality of Continental journeys. He has climbed on his machine most of the Alpine passes, from the Riviera round to the Grossglockner. On these trips he keeps his daily mileage down to about 100, and he says that the standards of driving and road courtesy he has encountered, especially in Switzerland, have increased the pleasures of motor-cycling for him.

Many of Mr. White's journeys are made in the company of his son, who left I.C.I. in favour of an open-air job after being

Mr. J. Stuart White and his son pause at Lac d'Annecy during a Continental motor-cycle tour

wounded during the war. Mr. White senior was Explosives Sales Manager at Bradford when he retired in 1939, but he found a congenially explosive spare-time activity in the Home

Guard, in which he was a battalion ammunition officer. He speaks with relish of clearing bomb stores out of piggeries, tennis pavilions and golf-course bunkers and of dealing with enthusiastic inventors of home-made bombs.

Apart from motor-cycling his hobbies are now vegetable gardening and the Scout movement.

PLASTICS DIVISION

Tribute in Type

The unusual portrait of Her Majesty shown below is the work of the Plastics Works Typing Pool at Wilton.

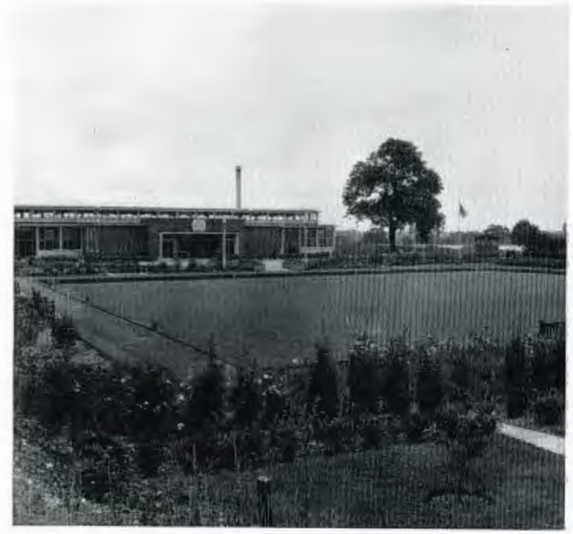
Miss J. C. Clayton, who is in charge of the Pool, says that the idea was suggested by a similar picture published in a newspaper some months ago. One of the typists at Wilton

A portrait of Her Majesty made up of 8000 typewritten characters

put a stencil in a machine not in regular use, and from then on everyone had a share in building up the picture. Anyone with an odd moment to spare or who happened to pass the typewriter would add to it a little. Eight thousand separate characters went to make the finished picture.

New Bowling Green selected for County Match

It is a signal honour for any bowls club to be asked to stage a Middleton Cup game. For the English Bowling Association to choose for one of these inter-county matches a green that is only in its first full playing season is probably without precedent—but that is what happened when the Association's selectors chose the new six-rink Cumberland turf green belonging to the Plastics Division Bowling Club at Black Fan Road, Welwyn Garden City.

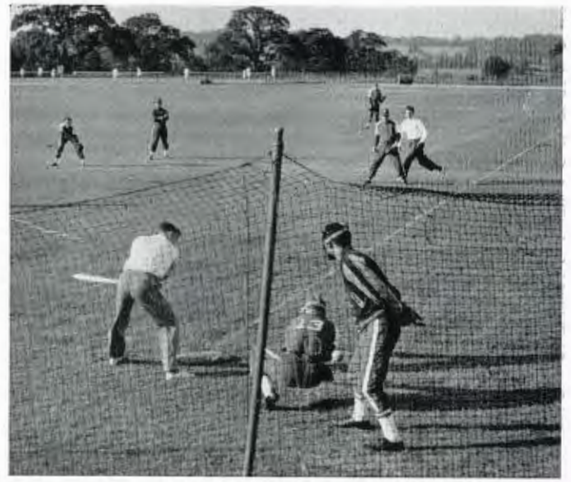


The bowling green at Black Fan Road

The club committee, with little more than a week's notice, were asked to play host to the Essex and Middlesex County teams for their quarter-finals match for the Middleton Cup. Much of the credit for the success of the afternoon goes to green-keeper Mr. Ernest Croft, who has lovingly tended the green since the day it was opened for play in June 1952. At the dinner held after the match he heard from men with long years of bowling behind them, in this country and abroad, that they had never played on a better surface.

It's not Cricket

One evening this summer on the recreation field at Welwyn the thwack of bat against ball was punctuated by strange and unusual cries such as "Pitch it right here !" and "Have it home,



Softball at Welwyn. J. Mulholland misses a strike while J. Pearce steals second base.

boy !" Brightly attired fielders performed unorthodox evolutions, and the bowler could distinctly be seen to *throw* the ball.

It was definitely un-English and not cricket, the onlookers agreed. It was in fact the initiation of the newly formed softball section by an American team from the United States Special Services base at Lakenheath. The Americans were drawn from crack teams stationed in the United Kingdom, most of them playing regularly both in this country and on the Continent. At Welwyn they gave the beginners' team a trouncing, as was only to be expected. Later the Welwyn team travelled to Lakenheath for a return game. They lost again heavily, but as the captain explained: "It is all good experience —and that is what we need at this stage."

The Softball Section was started at the suggestion of two Canadians working at Welwyn, Mr. A. McAfee and Mr. R. Gillies. Mr. McAfee is chairman of the section, Mr. Gillies match secretary, and an Englishman, Mr. J. Mulholland, is the secretary. There are twelve members at present, but the section could do with many more, for a team consists of nine men.

Softball might be called the amateur's baseball—but it is not, Mr. Mulholland emphasises, the same as rounders. It is widely played in Canada and the U.S.A., and the Welwyn players have a wide choice of opponents in service teams from those countries now stationed in the United Kingdom.

SALT DIVISION

Salt may make our Coal Mines Safer

If experiments being organised by the Ministry of Fuel's Safety in Mines Research Establishment are successful, I.C.I. rock salt may help to make British coal mines safer places to work in.

The dust which is formed during the winning of coal, and which is carried along in the air of the workings, is a constant enemy of the coal miner, for two reasons. One is the danger of a coal dust explosion, which might send a sheet of flame hurtling along the galleries; the other is the silent, stealthy danger of pneumoconiosis, the lung disease which is often associated with coal-dust laden atmospheres and which kills more men every year than pit accidents.

German mining engineers were the first to notice that where salt water seeping into a coal mine had evaporated, coal dust was trapped by the salt crystals. This observation was the basis for a new technique which some German mines are already using. The roof sides and floor of the mine roadways are coated with a layer of salt which is periodically sprayed with water.

Much remains to be learned about the method and the scope of its application in British mines, where conditions, in general, differ from those in Germany. A visit to mines in the Ruhr was made last year by representatives from I.C.I. the Mines Research Establishment and the National Coal Board. Very soon full-scale, closely supervised trials are to take place in mines in Britain, and I.C.I. Ground Rock Salt Grade 5 will be used.

'TERYLENE' COUNCIL

Managing Director Appointed

Dr. F. J. Siddle, who has been director in charge of technical service and development on the Dyestuffs Division board since 1945, was appointed a managing director of the 'Terylene' Council on 1st August. He will not relinquish his membership of the Dyestuffs Division board, however, until the end of October.

Dr. F. J. Siddle

Educated at Leeds University, Dr. Siddle took a first-class honours degree in colour chemistry and went on to do research work aided by a Cloth-workers Fellowship. He joined Dyestuffs Division at Blackley in 1930, his early work being concerned with synthetic resins, rubbers and polymers generally. Thirteen years later he became manager of the Resins Service Department.

Dr. Siddle has been a part-time member of the 'Terylene' Council since it was first set up in 1951. He is chairman of Albert Products Ltd. and was appointed a visiting member of Leathercloth Division board early last year.

Among his outside interests perhaps photography is the most important. Dr. Siddle also takes a keen interest in amateur dramatics although no longer in an active role—a remark which also applies to boxing, a sport in which he was at one time university champion middleweight.

Fashion Adviser for 'Terylene'

Lady Ashton, professionally known as Mrs. Madge Garland, has been appointed fashion adviser to the 'Terylene' Council.

Mrs. Garland is Professor of Fashion Design at the Royal College of Art—the only such appointment in the country. Her work of training the fashion designers of the future has meant that she has been in close contact with the development of 'Terylene,' and she is keenly interested in the new fabrics which science has given to the fashion industry.

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OUR NEXT ISSUE

How many people in I.C.I. can be aware that the Company owns eight sailing barges? Their mission in life is to convey explosives to ocean-going vessels in the Thames. The story of these barges, of which there are now only thirty left (no more are being built), is told in our leading article by the *Magazine* News Editor, Michael Danckwerts.

Our next feature is centred on some rather remarkable colour photographs of tropical fish in a London aquarium. The startling colours of these beautiful creatures have reproduced surprisingly well, and the illustrations are a worthy accompaniment to the story which Mr. Douglas Hind of Fleetwood Works tells about the technique of aquarium-keeping.

Next is an article from a working man in the Powfoot Factory of Nobel Division. Tom McNay has an unusual system of keeping bees. He has constructed a beehouse 12 ft. by 9 ft., in which ten colonies of bees live and in which he can look after the bees (who keep particularly warm and dry) even in the worst of weathers. Lastly, Mr. Henry Maxwell, former editor of the *Magazine*, writes a brilliant little story describing a scene of Gallic excitement at the Gare de Lyon in Paris.

Portrait of the month—2

R. WILSON SHAW

Robert Wilson Shaw, Works Labour Officer at Ardeer Factory and Nobel Division Deputy Labour Manager, brings to these jobs the energy that has won him acclaim in another field—that of rugby football.

Even the rabid Scottish rugby fans who write regularly to the press calling for the heads of the selectors agree that Wilson Shaw should be retained on the committee. In the realm of rugby he is something of a national hero, and that he has remained a hero while being a selector at a difficult time for the game in Scotland gives the measure of his popularity.

In the late 1930's he was one of the outstanding personalities of Scottish rugby. Though of less than medium height he was powerfully built and possessed a quickness off the mark that was the despair of his opponents.

It was Scotland's game against England in 1938—still known as "Wilson Shaw's match"—that set the seal on his reputation. Under his captaincy the Scottish XV had beaten Wales and Ireland and needed only this game to bring them the international championship, the Triple Crown and the Calcutta Cup.

At stand-off half Wilson Shaw set a pace that England could not match, but two minutes from the end the issue was still in doubt. He settled it by gathering the ball from the loose and going right through the English defences for a try.

The score was 21 points to 16. Scotland had won at Twickenham for the first time since 1926, and the Scottish contingent gave a cheer that was echoed resoundingly when Wilson Shaw returned to Ardeer the following Monday. He is an unassuming man, but it will take him a lifetime to live down that game.

CURTAIN UP!

By Mollie E. Fraser

(*Illustrated by Pogorski*)

"BEGINNERS, please !" Before the curtain goes up that call is nerve-racking for the seasoned professional actor and the amateur alike. Behind the curtain people rush about looking for props, set the stage and take last-minute glances in mirrors. Nevertheless this excitement is a pleasure that countless thousands of people enjoy every year in amateur shows. I enjoy the excitement of waiting for the curtain to go up, although at the time it seems a paralysing fear.

The Ardrossan and Saltcoats Players Club, of which I am a member, earned national recognition some twenty-five years ago, when they won the Scottish Community Drama Association Cup, the Howard da Walden Trophy of the British Drama League and the David Belasco Cup in New York with a performance of J. M. Barrie's *The Old Lady Shows Her Medals*. Several of the people associated with the team made names for themselves on the professional stage. Among them were the late Mr. James Woodburn, who played opposite Helen Hayes in *Victoria Regina* in America, and Mr. Jack Lambert, who has played in many films and stage shows.

Naturally such a club has traditions of acting, and its experience is of great value to young players like myself. It believes in a short period of intensive rehearsals rather than a long-term effort which would lead to boredom. The average time we have to produce a play is six weeks. At times it is even less. Then we rehearse practically every night of the week—and that is a bit of a trial, even for people who like to act.

There are the critics who think that amateur acting is a waste of time, with weeks of slogging for a show that is over in a night or two. Our members do not feel that way.

During the war we were one of the few clubs which managed to keep going. A number of servicemen joined the company, so there was no male shortage. I remember touring with one play in about a dozen different towns. All our proceeds went to charity. Over £6000 was handed over, which was a good effort for an amateur club.

I joined the Players as a raw junior at the start of the last war. All the experience I had was in a school production of *A Midsummer Night's Dream*. I was a ten-year-old Puck. At that time the club held meetings in a small temperance hotel. There were two horsehair armchairs, a sofa that had more dips in it than a scenic railway, and a rocking chair. The room had heavy tasselled chenille curtains, antimacassars, and an aspidistra on top of a sideboard backed with an old cracked brown mirror.

I sat at an angle of 45 degrees on the sofa, trying to look at ease. The play *Quiet Wedding* by Esther McCracken had not been cast and the producer asked me to read the part of Miranda, a fourteen-year-old schoolgirl. I imagined myself prancing about the stage in a gym tunic miles too small for me. But it did not last. The parts were switched, and I read Madame Mirelle, a French dressmaker. I liked this part and was lucky to be given it the following week when the play was finally cast.

The first rehearsals went smoothly enough . . .

The first rehearsals went smoothly enough, but the dress rehearsal was dreadful. The leading lady had a bad cold and sniffed through the love scenes, part of the scenery fell down, a stagehand sprained his wrist and I forgot my lines. I felt miserable and wondered what made me think I could act. However, the old saying "Bad dress rehearsal, good show" was right, and on the opening night we had a packed house and a grand reception.

After our show at Saltcoats we performed in the Gaiety Theatre in Ayr on a Sunday evening. This was a purely professional theatre, and we were all thrilled about it and nervous. We need not have worried. We were very well received, and the owners of the theatre were exceedingly kind to us. Some years later in this little theatre the end of the war in Europe was announced during our performance, so we all have very pleasant memories of Ayr.

On Sundays we hired a private bus and toured Scotland with different plays. We had little or no scenery in some places, but the audiences did not care. One small town beat the others hollow. The organisers thought we were a concert party and had provided one immovable grand piano. That night our scenery was two draught-screens, a kitchen table and a chair. The play demanded that I should use an old oak chest. Someone told me not to worry, they would get something that would do very well. "This old chest," said I dramatically, "has been in the family for generations—we can't sell it." When I looked down, there was an empty cardboard box with the words "This carton holds 4 dozen cans of beans."

I suppose everyone who has been on the stage, amateur or professional, covets a certain role. My wish was to play Eliza in Shaw's *Pygmalion*. It is a difficult play for amateurs, but our producer decided that we would tackle it for the spring show, with myself as Eliza.

After playing in Saltcoats with some success we went again to the Ayr Gaiety, for a week this time. On the Tuesday night during my big scene in the fourth act, instead of the usual hush a titter rippled through the audience. I wondered what had gone wrong. My next move was over to the french windows. Through the open windows the tail of a cat was curling as it walked back and forward in full view. "If only it stays there !" I hoped. The next minute it jumped through where the glass should have been, padded majestically past me and, sitting on the rug downstage, proceeded to wash itself.

I carried on speaking, but I need not have bothered. The cat held the stage. I did not know whether to laugh or cry. People stood in the wings trying to tempt it with milk, pieces of string and other delicacies, but not all the persuasion in the world could shift that animal. Then it moved under the old-fashioned settee and I sighed with relief. Now perhaps we could get on with the play. Laughter broke out afresh as the cat's head peeped out and its paw played ball with the tassels on the fringe. Someone tactfully drew the curtain.

That was a memorable week at Ayr. On the Saturday afternoon we gave a matinée. My mother was there, and I hoped she would be able to tell me the general feeling of the audience. She came backstage and told me of a conversation she had overheard between a lady and gentleman in the next row. When I entered in evening dress after the ball—done up to kill, as I thought, in diamonds, ermine and the rest—the lady turned to her companion and said ecstatically "Ooh, isn't she lovely !" He replied "Aye, but she's a bit on the hefty side !"

The "Lamb and Flag" Yard—Oxford

Photo by Donald Leatherdale (Hawthorndale)